

FIG. 1

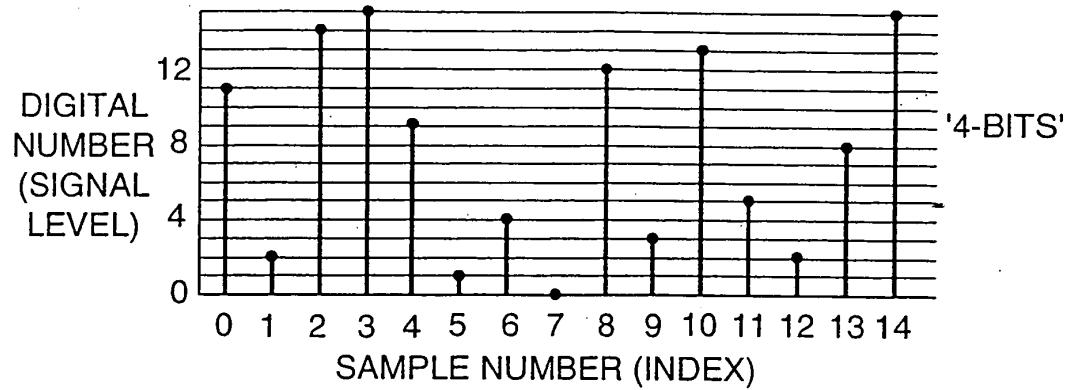


FIG. 4

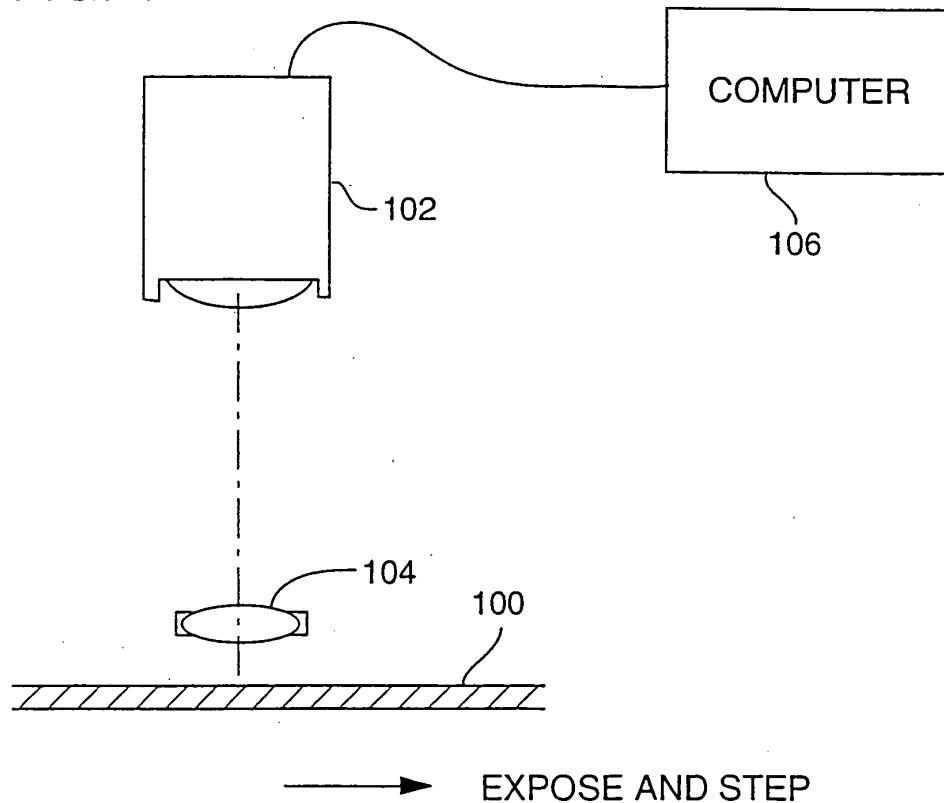


FIG. 2

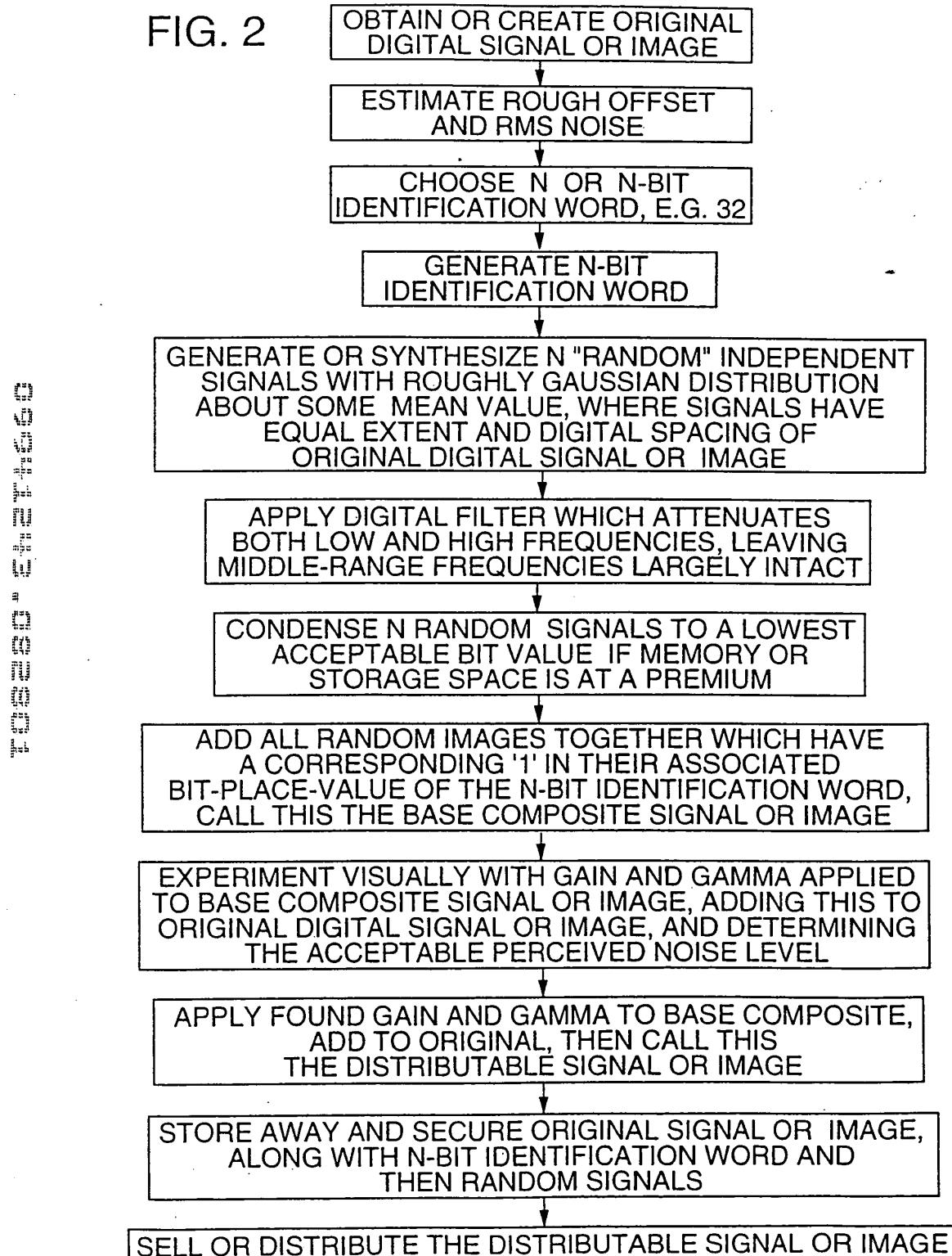


FIG. 3

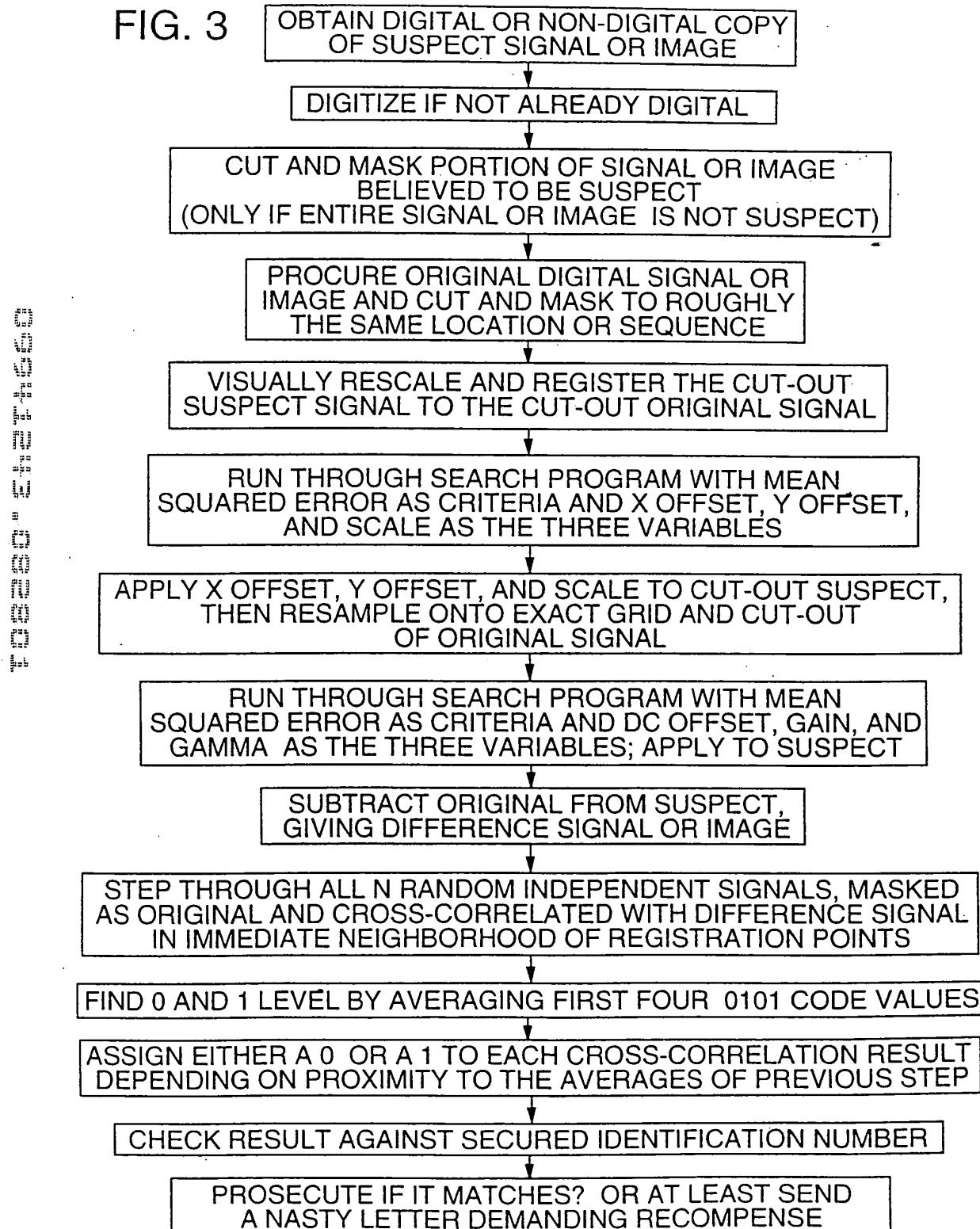


FIG. 5

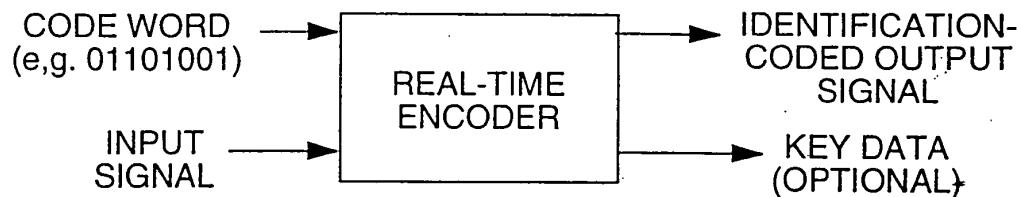
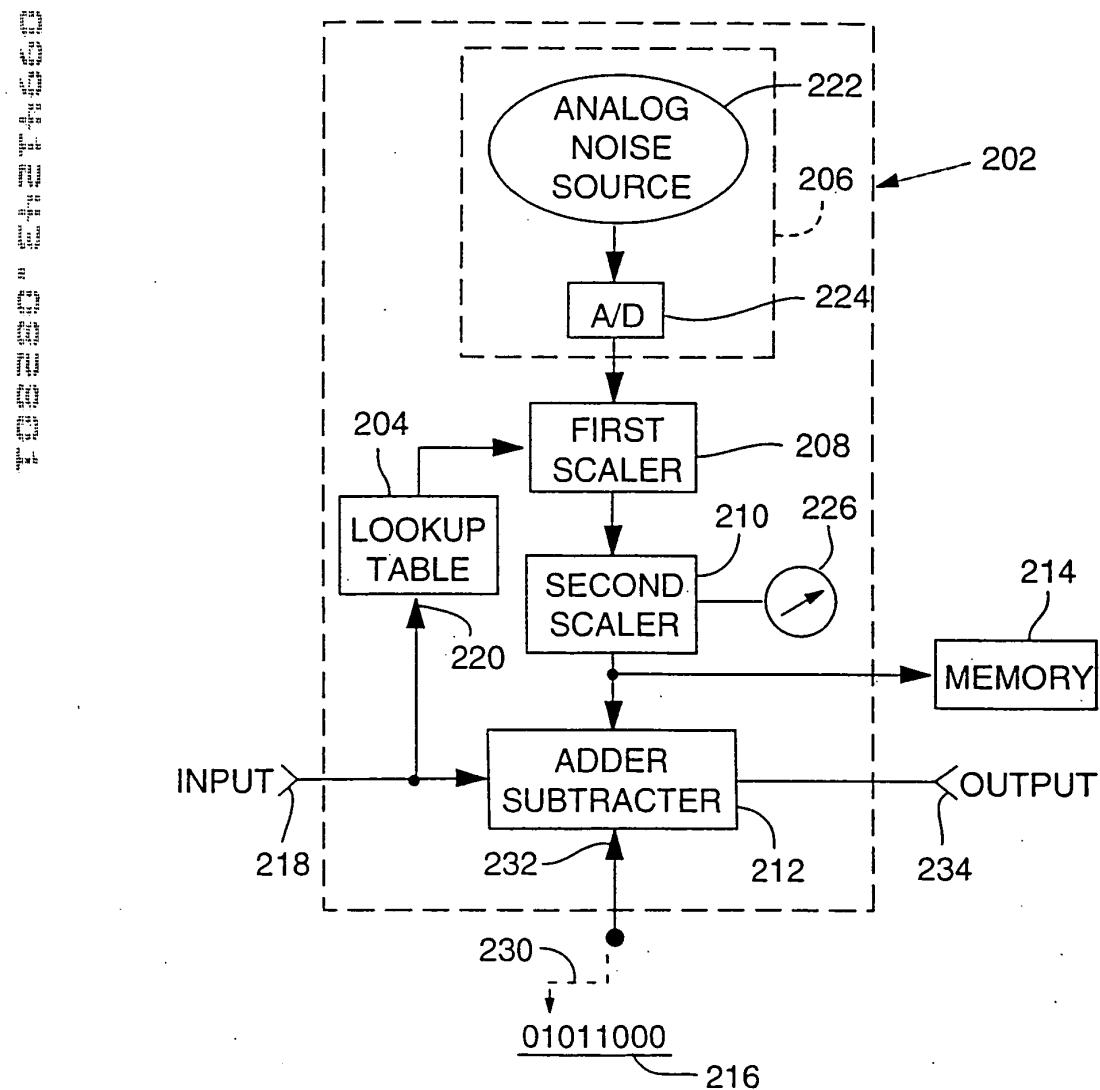


FIG. 6



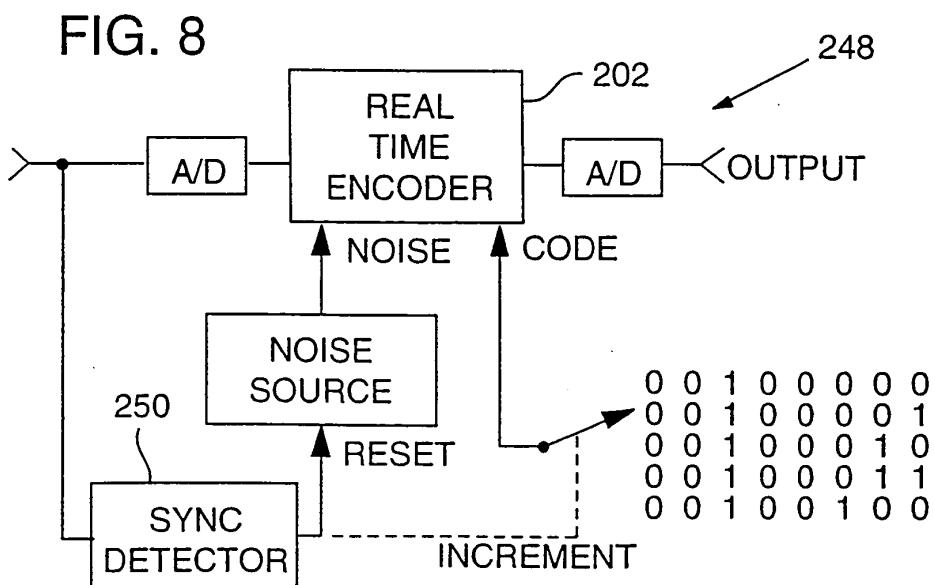
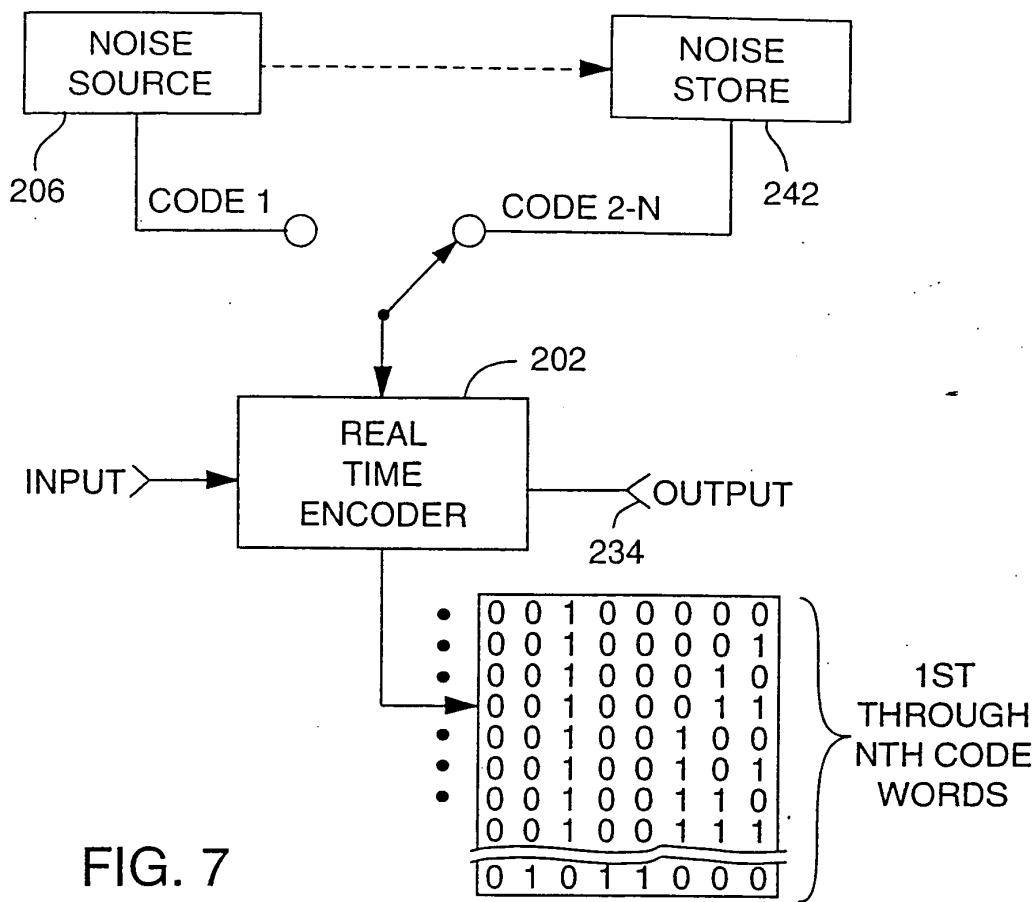


FIG. 9A

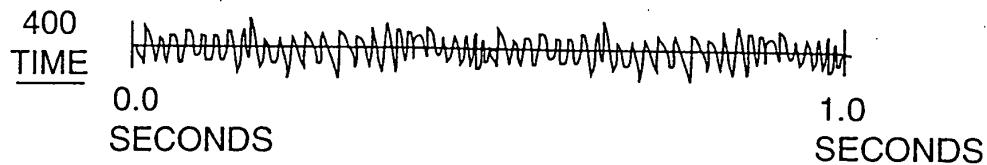


FIG. 9B

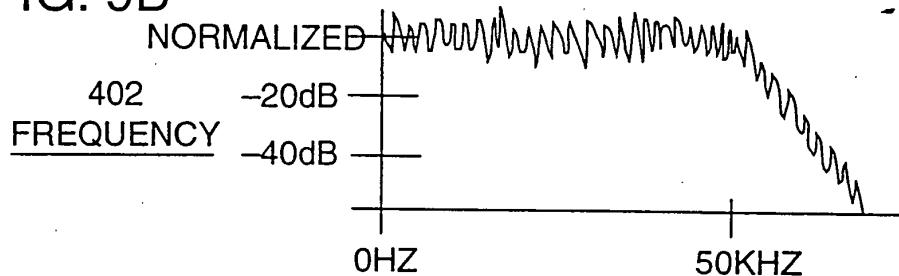


FIG. 9C

BORDER  
CONTINUITY  
404

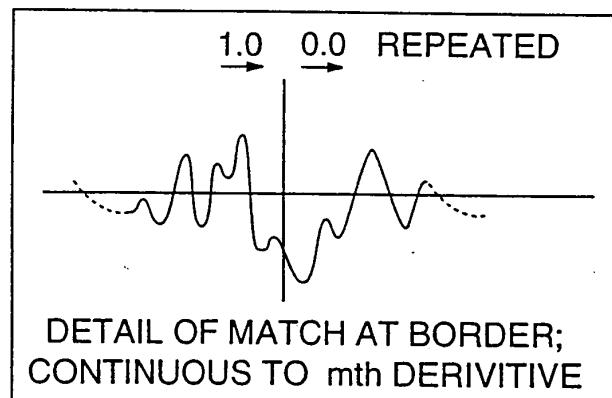


FIG. 10

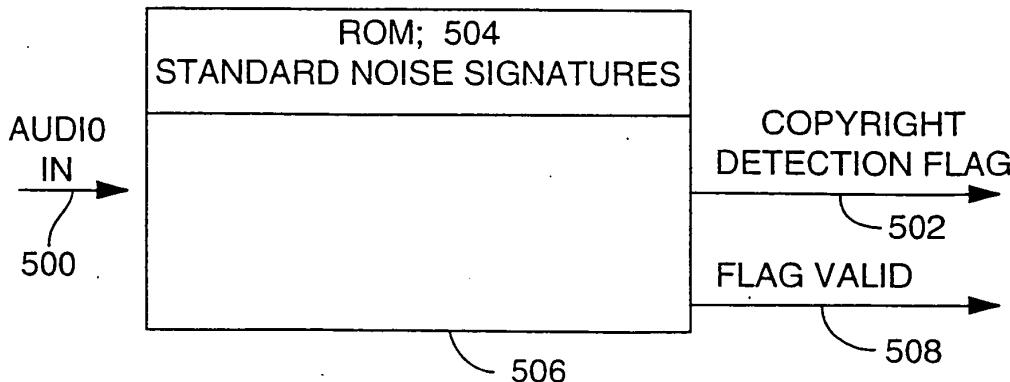


FIG. 11

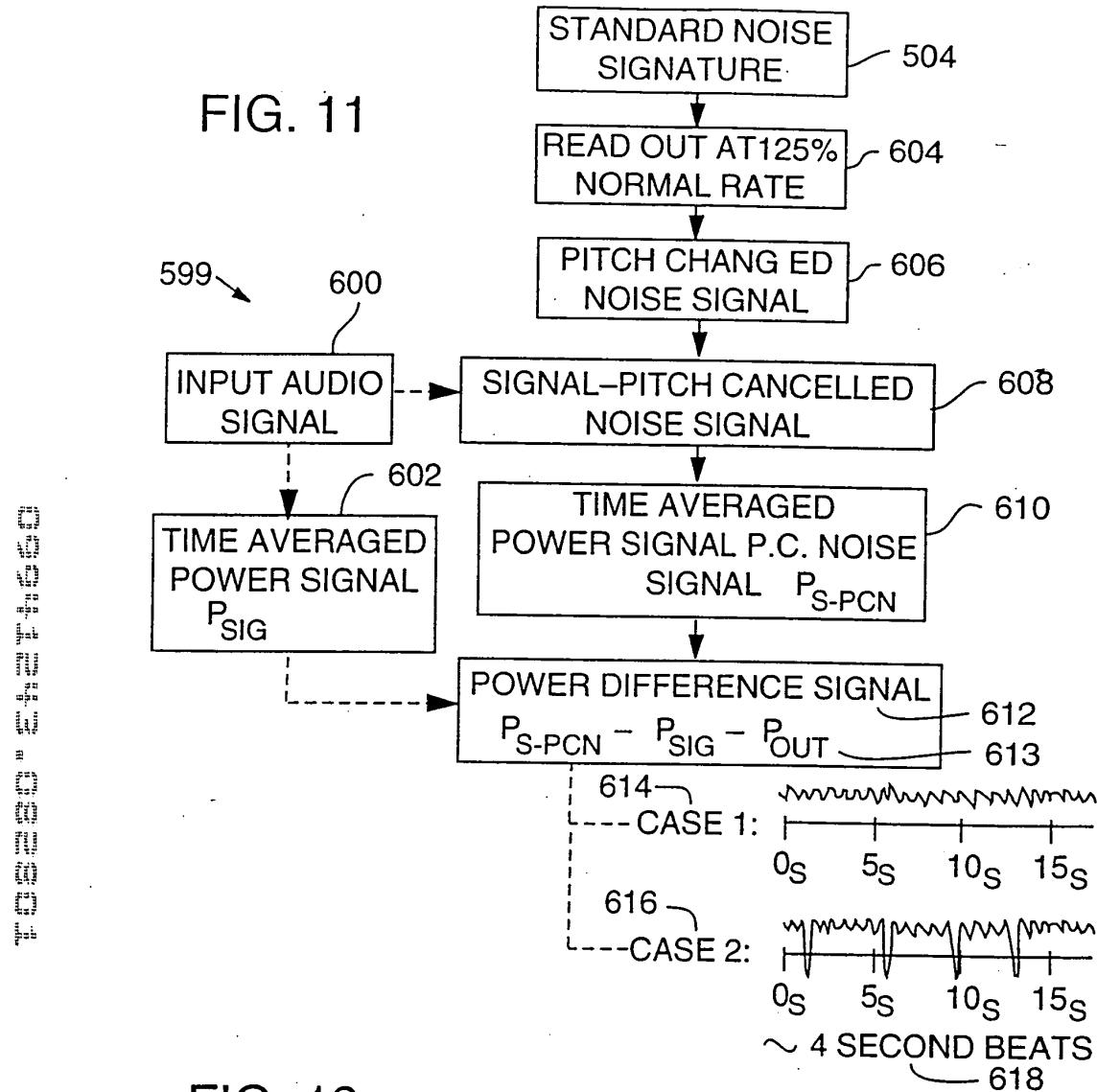


FIG. 12

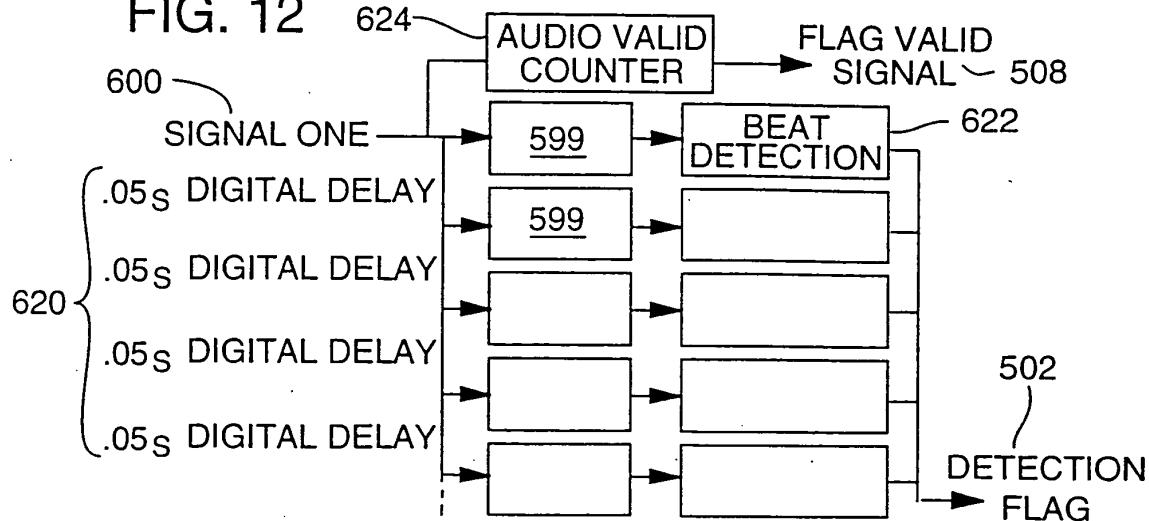
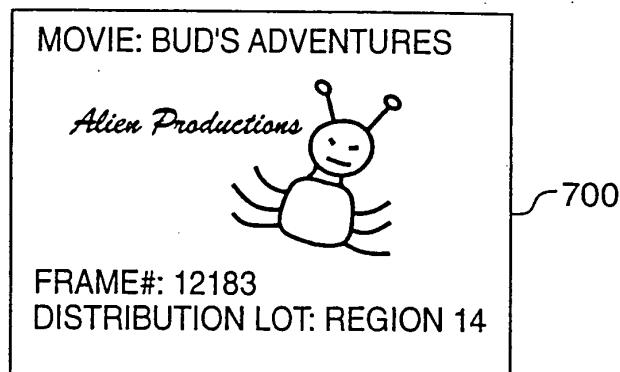
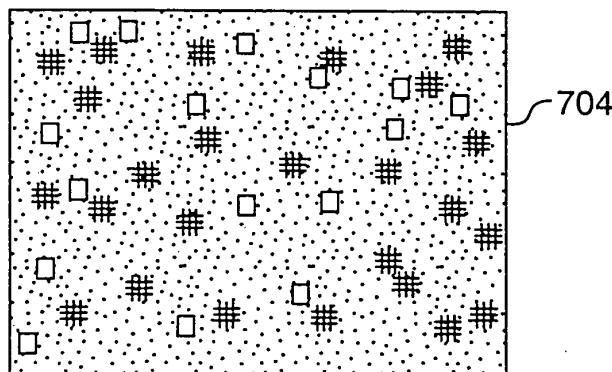


FIG. 13

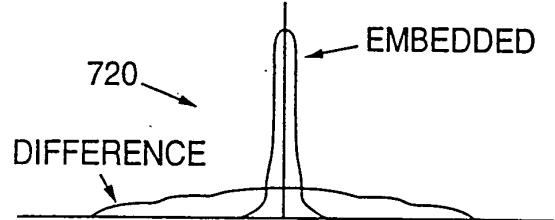


↓ ENCRYPTION/SCAMBLING  
ROUTINE #28, 702

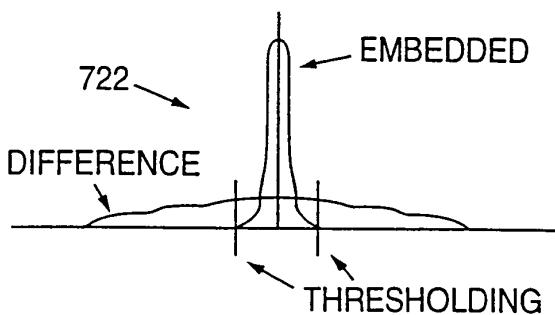


PSEUDO-RANDOM MASTER SNOWY IMAGE  
(SCALED DOWN AND ADDED TO FRAME 12183)

FIG. 14



MEAN-REMOVED HISTOGRAMS OF  
DIFFERENCE SIGNAL AND KNOWN EMBEDDED  
CODE SIGNAL



MEAN-REMOVED HISTOGRAMS OF  
FIRST DERIVATIVES (OR SCALER GRADIENTS  
IN CASE OF AN IMAGE)

095455 095455 095455 095455

FIG. 15

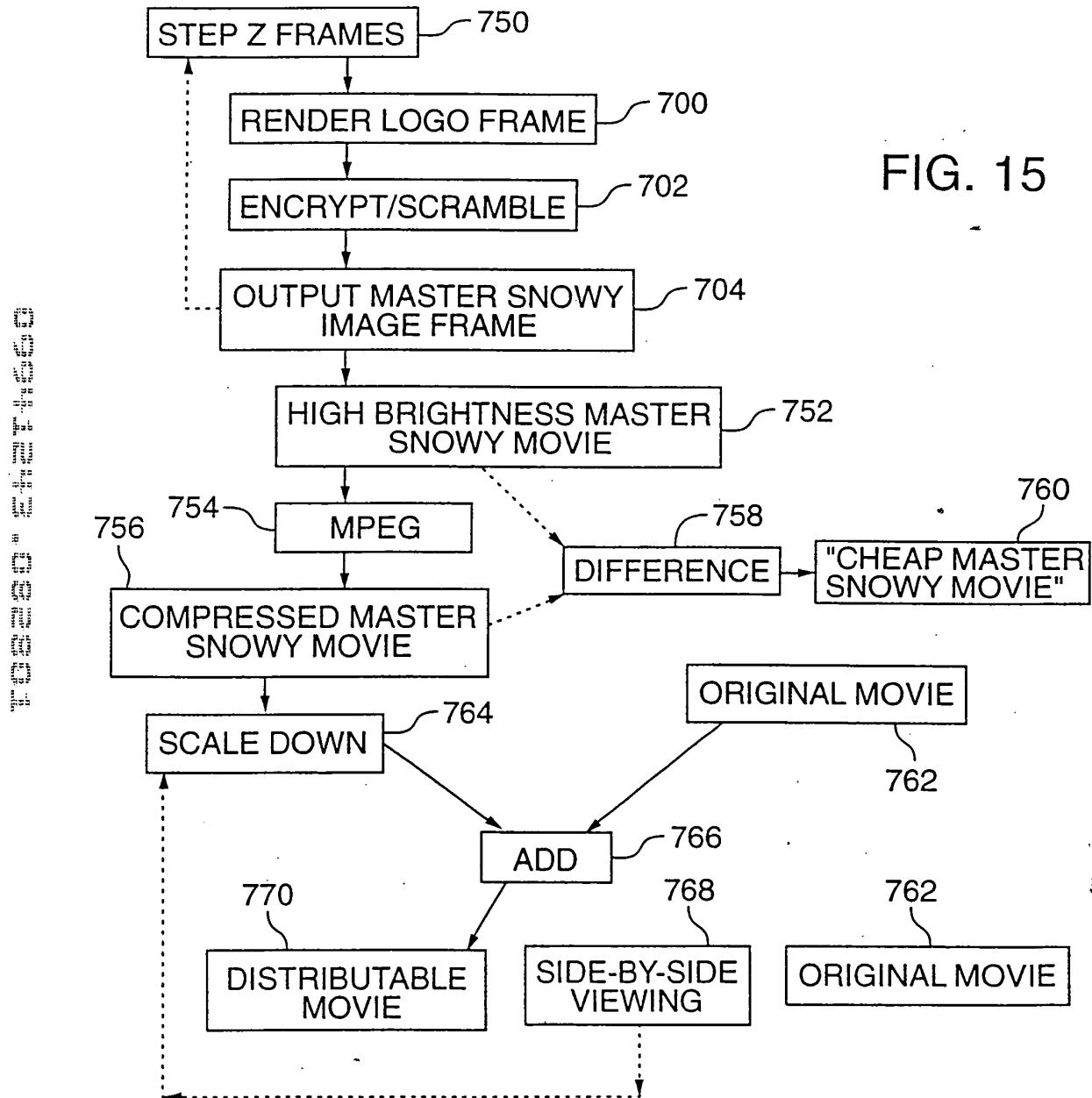


FIG. 16

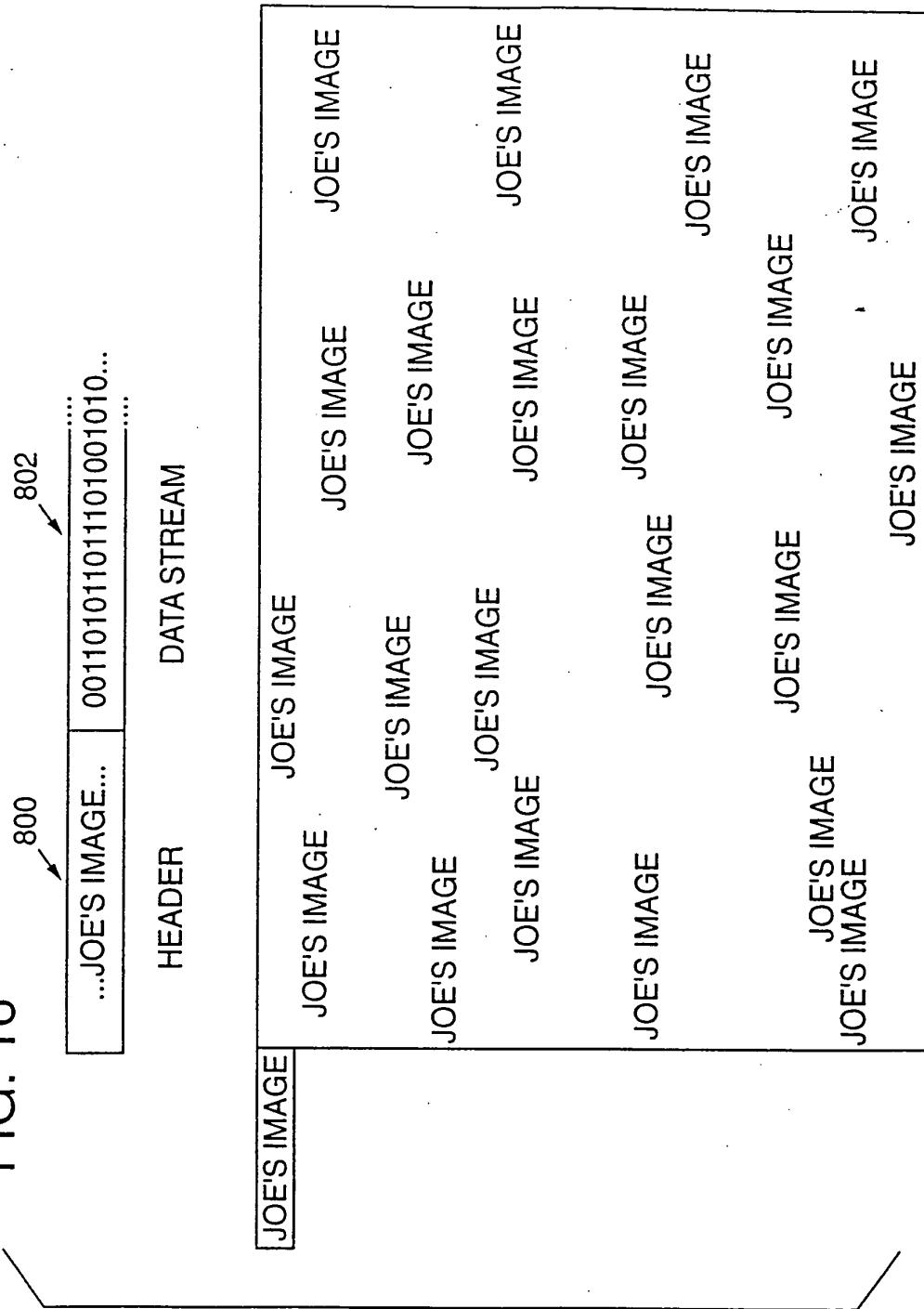


FIG. 17

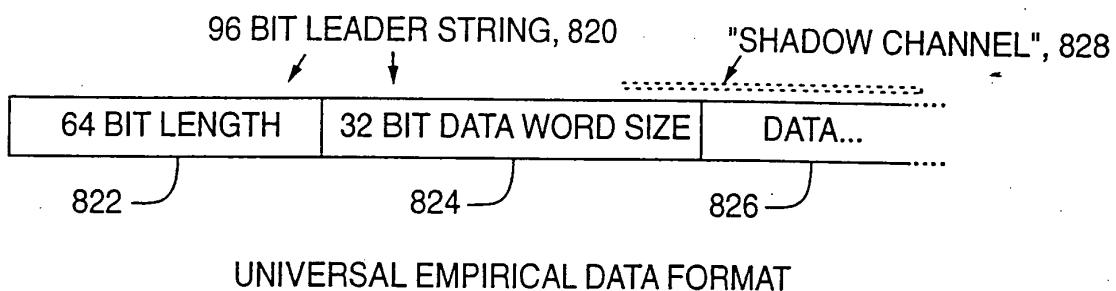


FIG. 18

00000000000000000000000000000000

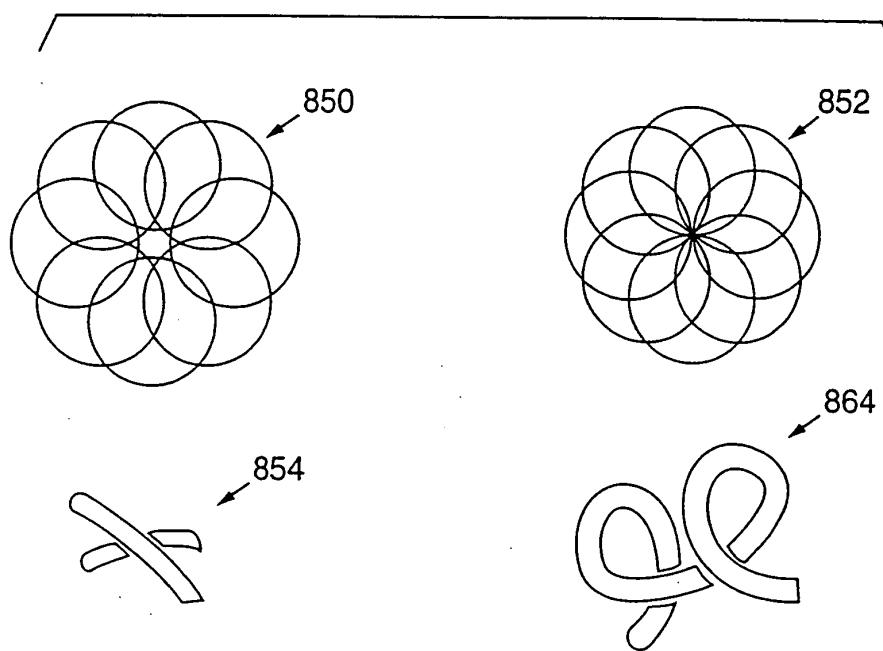


FIG. 19

866

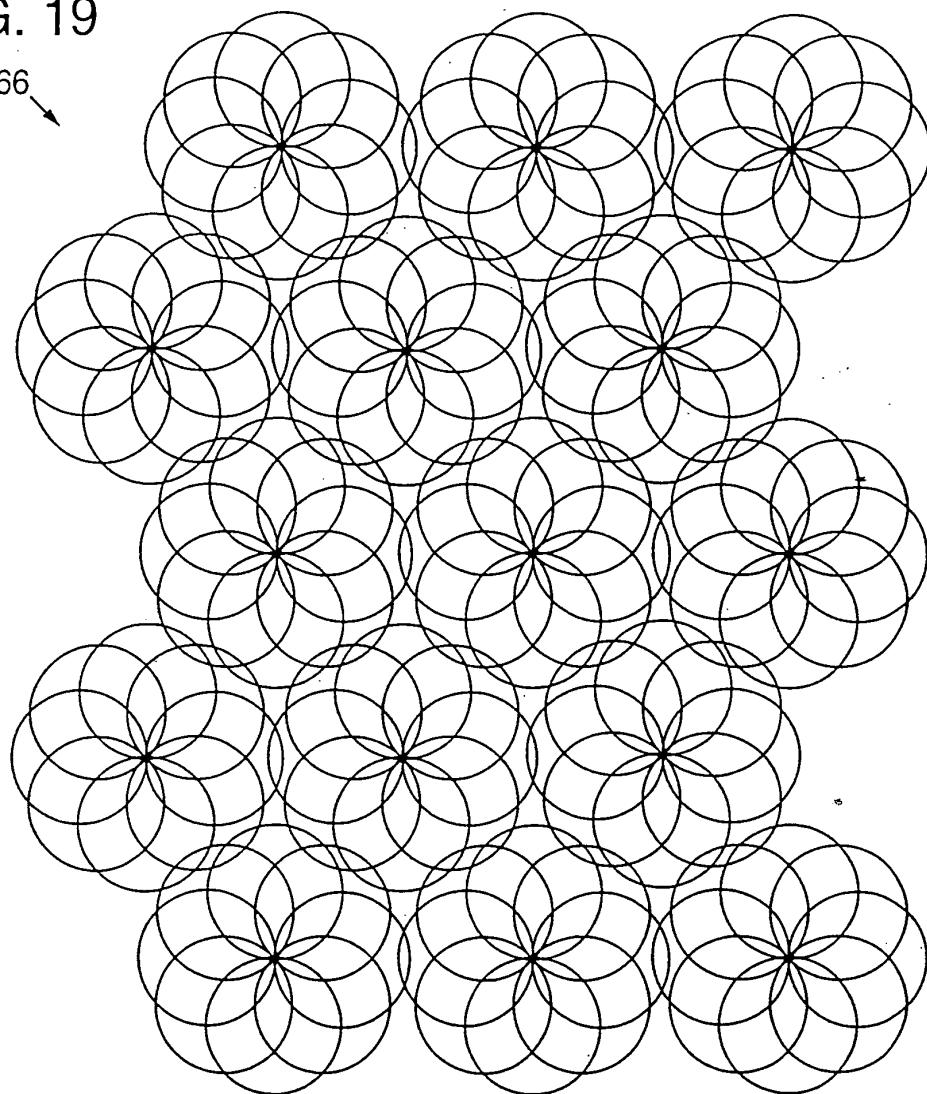


FIG. 20

CENTER POINT OF  
RING, 872

## BRIGHTNESS PROFILE, 874

NOMINAL DISTANCE  
TO CENTER OF OUTER  
RING WIDTH, 870

NOMINAL DISTANCE  
TO CENTER OF OUTER  
RING WIDTH, 870

876

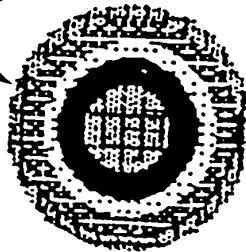


FIG. 21A

900 →

C	2C	C
2C	4C	2C
C	2C	C

WHERE  $C = 1/16$

FIG. 21B

2	3	4	5	6	7	0	...
6	7	0	1	2	3	4	...
			C	2C	C		...
2	3	4	2C	4C	2C	6	7
			C	2C	C		0
6	7	0	1	2	3	4	...
...	...	...	...	...	...	...	...

FIG. 23

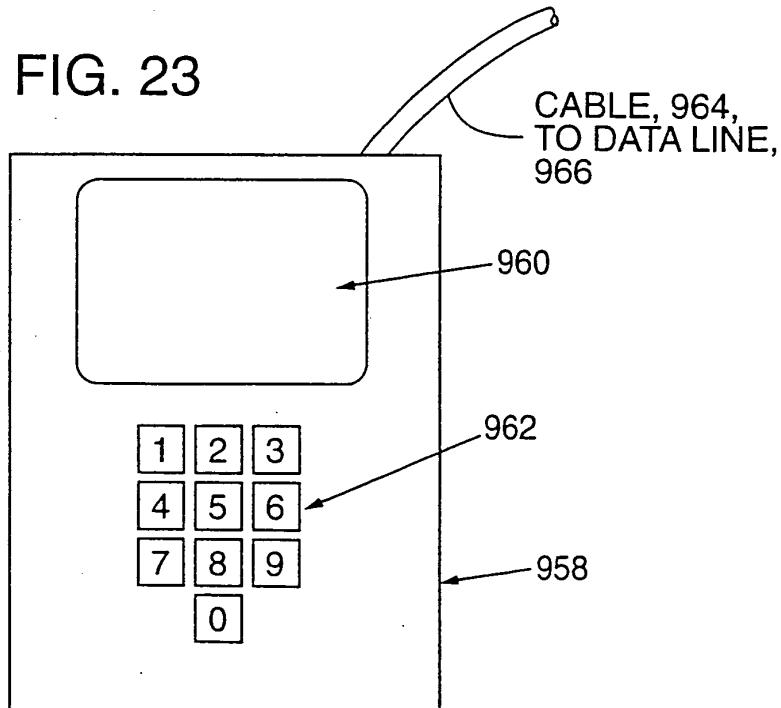


FIG. 22

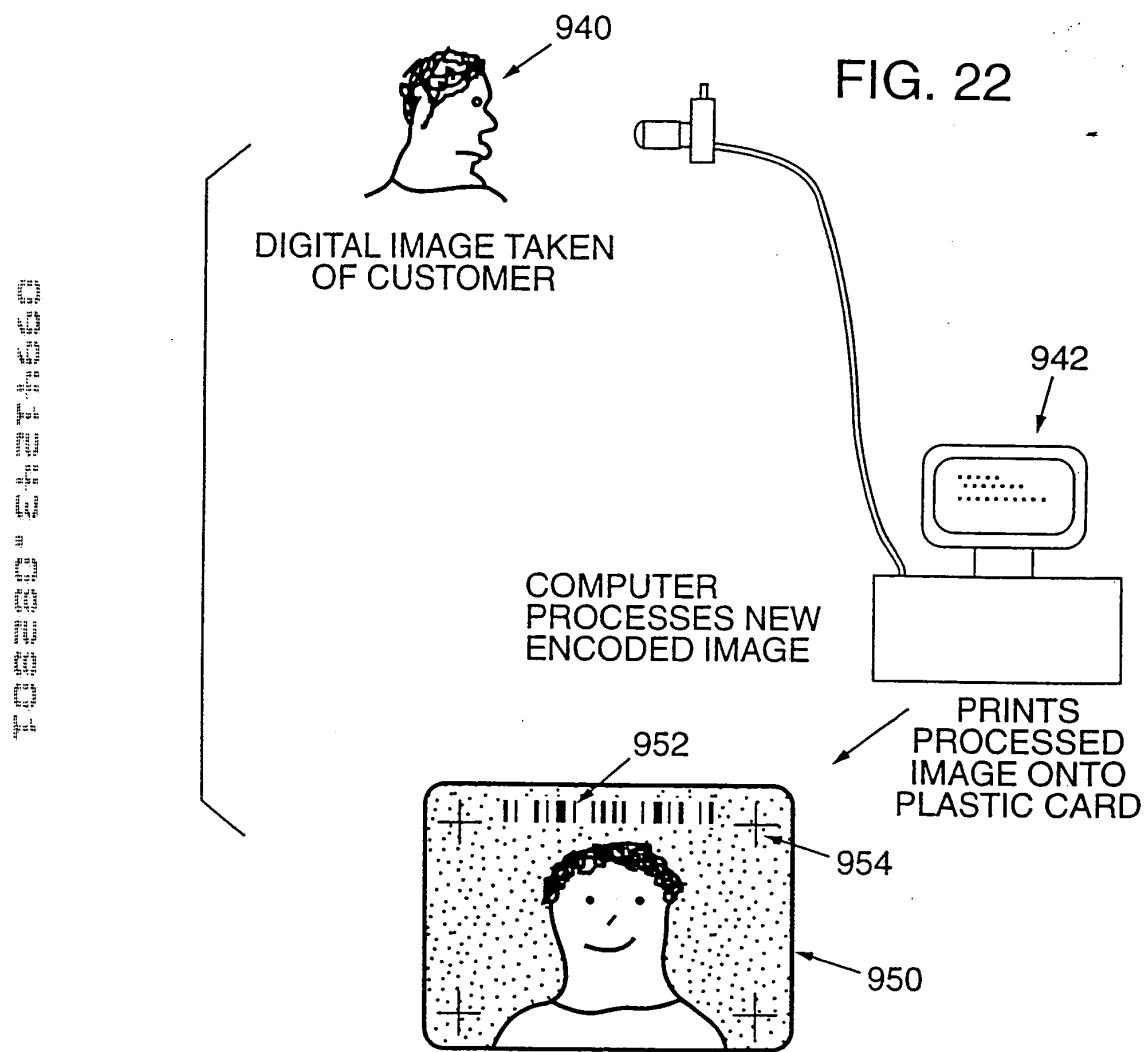
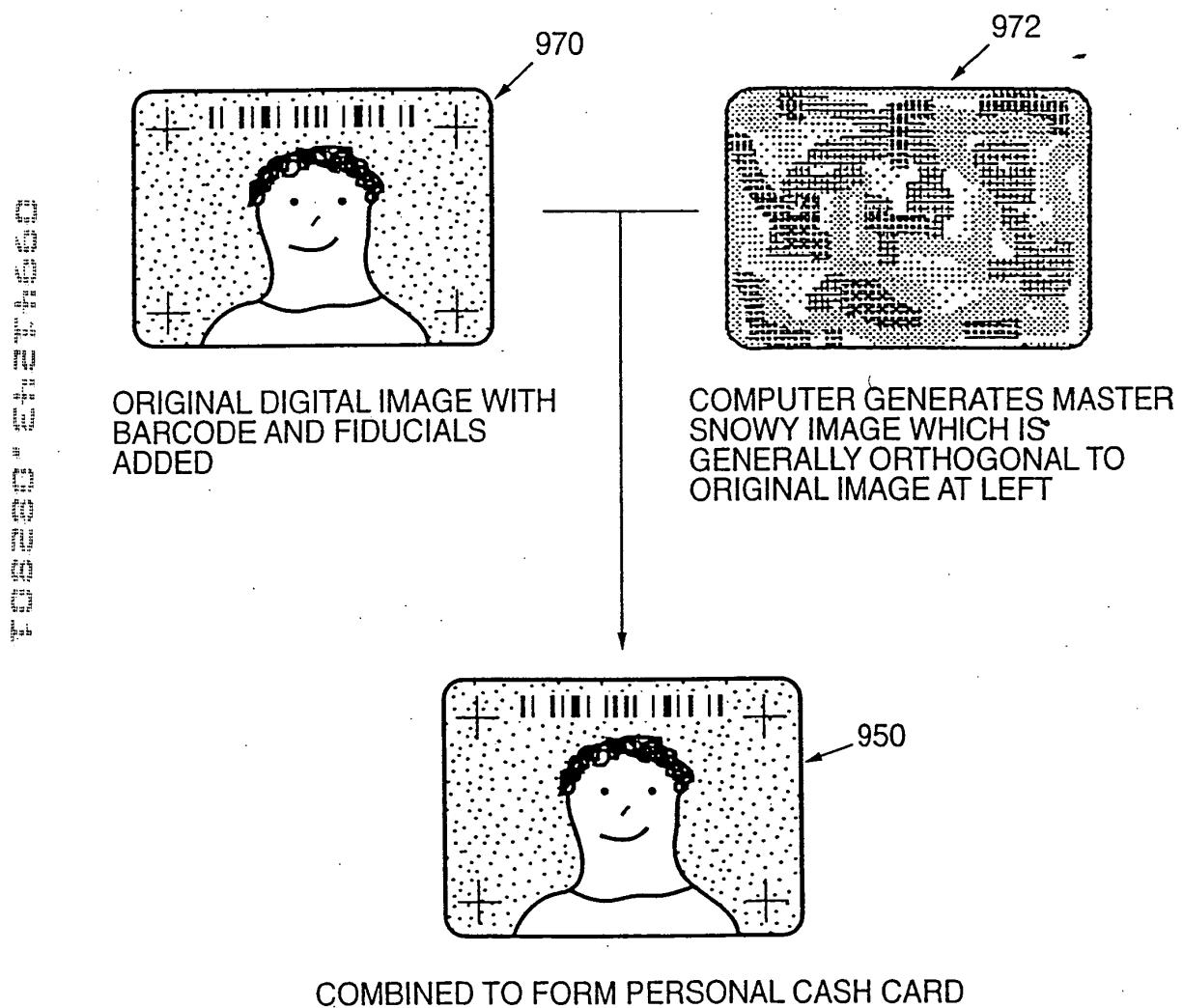


FIG. 24



47032203 0000000000000000

## FIG. 25 TYPICAL TRANSACTION STEPS

1. READER SCANS IMAGE ON CARD, STORES IN MEMORY, EXTRACTS PERSON'S ID
2. OPTIONAL: USER KEYS IN PIN NUMBER
3. READER CALLS CENTRAL ACCOUNT DATA NETWORK, HANDSHAKES
4. READER SENDS ID, (PIN), MERCHANT INFORMATION, AND REQUESTED TRANSACTION AMOUNT TO CENTRAL NETWORK
5. CENTRAL NETWORK VERIFIES ID, PIN, MERCHANT INFO, AND ACCOUNT BALANCE
6. IF OK, CENTRAL NETWORK GENERATES TWENTY-FOUR SETS OF SIXTEEN DISTINCT RANDOM NUMBERS, WHERE THE RANDOM NUMBERS ARE INDEXES TO A SET OF 64K ORTHOGONAL SPATIAL PATTERNS
7. CENTRAL NETWORK TRANSMITS FIRST OK, AND THE SETS OF RANDOM NUMBERS
8. READER STEPS THROUGH THE TWENTY-FOUR SETS
- 8A. READER ADDS TOGETHER SET OF ORTHOGONAL PATTERNS
- 8B. READER PERFORMS DOT PRODUCT OF RESULTANT PATTERN AND CARD SCAN, STORES RESULT
9. READER TRANSMITS THE TWENTY-FOUR DOT PRODUCT RESULTS TO CENTRAL NETWORK
10. CENTRAL NETWORK CHECKS RESULTS AGAINST MASTER
11. CENTRAL NETWORK SENDS FINAL APPROVAL OR DENIAL
12. CENTRAL NETWORK DEBITS MERCHANT ACCOUNT, CREDITS CARD ACCOUNT

FIG. 26

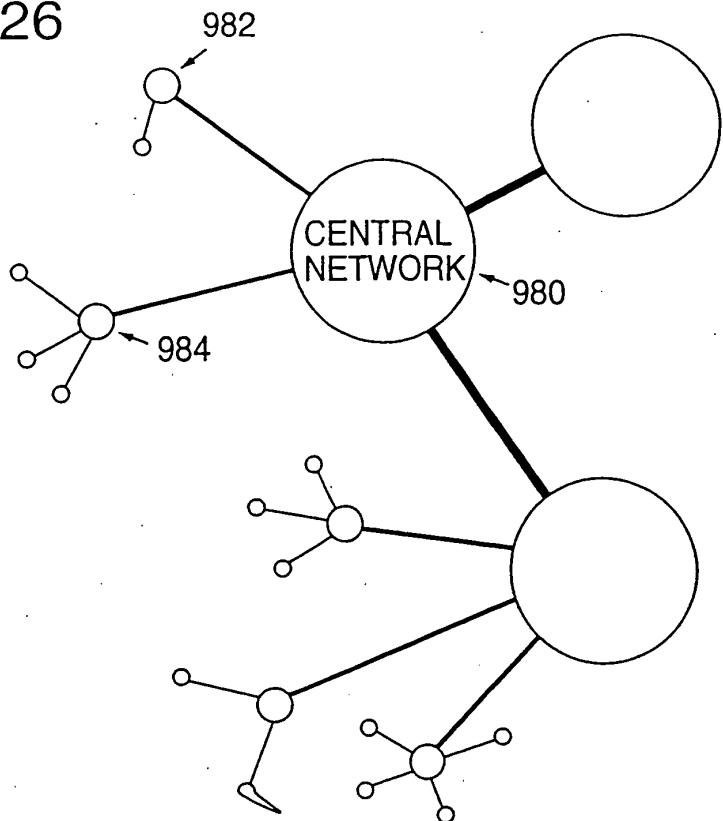


FIG. 27

